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EXAMINER	
JOLLEY, KIRSTEN	
ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/682,829	POTYRAILO ET AL.
	Examiner	Art Unit
	Kirsten C Jolley	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,17-31,33,35,43,45,47 and 49-51* is/are pending in the application.

4a) Of the above claim(s) *27-31,33,35,43,45,47 and 49-51* is/are withdrawn from consideration.

5)☐ Claim(s) *26* is/are allowed.

6)☐ Claim(s) *1-5,17-19 and 21-25* is/are rejected.

7)☐ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-5, 17-31, 33, 35, 43, 45, 47, and 49-51 are pending in the application. Claims 27-31, 33, 35, 43, 45, 47, and 49-51 have been withdrawn from consideration.

Information Disclosure Statement

2. The Examiner notes that, in the information disclosure statement filed December 12, 2001, copies of the Freud reference, Dickinson reference, Ballantine reference, Smith reference, *Organic Coatings* reference, *Surface Coatings Vol 2* reference, and *Coating technology handbook* reference were not located in the file, therefore the information referred to therein has not been considered and the references have been crossed through on the submitted PTO-1449. If Applicant submits copies of these references, the information therein will be considered by the Examiner.

Response to Arguments

3. The 35 USC 102(b) rejections of claims 1-5 have been withdrawn in response to Applicant's amendments to claim 1 requiring a spatial mask between the curing system and the substrate. Claims 1-5 are now rejected under 35 USC 103(a) over Schultz et al. in view of Courtney et al. as discussed below.

4. Applicant's arguments filed December 11, 2003 have been fully considered but they are not persuasive.

Applicant states that Schultz et al. fails to teach or suggest the spatial mask claimed in independent claims 1 and 17. Applicant argues that Schultz's mask for metering material onto a substrate is markedly different from a spatial mask having variable radiation transmission characteristics for a curing system, and that there is no teaching or suggestion of a spatial mask positioned between the curing system and the substrate wherein the spatial mask has varying radiation transmissivities. Applicant argues that Courtney fails to compensate for the deficiencies of Schultz.

The Examiner acknowledges that the mask of Schultz et al. is used to selectively apply coating material and is different from a spatial mask for a curing system. However, the Examiner maintains that it is well known in the coating art to use spatial masks during curing to prevent particular regions of a coated substrate from being cured/irradiated. Courtney et al. is cited as an example of a system that uses a spatial mask between the coated substrate and curing system to expose certain areas of a coated substrate to prevent certain areas of coating on the substrate from being irradiated, while the unmasked portions are irradiated.

Schultz et al. teaches applying curing techniques directly to certain predefined/target regions of a substrate (col. 26, lines 46-50) -- one non-limiting example is to expose the coated substrate to different heat histories. It remains the Examiner's position that one skilled in the art would have been motivated to look to known prior art means for curing only selected regions of a coated substrate surface. Thus, it is the Examiner's position that it would have been obvious to have used the selective curing means of Courtney et al. (use of a spatial mask to provide selective irradiation) in combination with the system of Schultz et al. with the expectation of successful results because Schultz et al. teaches the desire to expose only certain target regions to

the reaction conditions and is not limited as to the means to accomplish selective curing, and because Schultz et al. teaches various irradiation techniques as means to react the components on the substrate surface.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 17-19, 21-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. (US 6,004,617) in view of Courtney et al. (US 4,390,615).

With respect to the apparatus/system limitations of claim 1, Schultz et al. discloses: a plurality of coating materials for forming at least one coating layer (col. 13, lines 47-49); a controller for controlling "small, precise metered amounts" of the coating materials (col. 16, lines 40-42 and section IV in col. 16-23); a mixer for mixing the plurality of coating materials (col. 26, lines 43-45); one or more substrates comprising a plurality of predefined regions for receiving the plurality of coatings; a coating system for delivering the plurality of materials to the substrate either incrementally or continuously (col. 16-23); a curing system for providing a plurality of curing environments (col. 26-27); and a testing device (col. 29-31). The combinatorial library of Schultz et al. comprises a predetermined combination of at least one of the plurality of coating materials and at least one of the plurality of curing environments associated with each of the plurality of predefined regions.

With respect to independent claim 17, Schultz et al. discloses a system for creating a combinatorial coating library, as discussed above, which includes: a coating system; a curing system operative to apply at least one of a plurality of curing environments simultaneously to each of a plurality of regions, wherein the curing environments include thermal radiation, microwave radiation, laser radiation, among others (col. 26, lines 27-39 and col. 27, line 25); and a thermal gradient heating element which is a thin-film resistive element, operably positionable adjacent to the one or more substrates, wherein the heating element has a variable heat distribution characteristic along its length (col. 27, lines 29-40); wherein the combinatorial library comprises a predetermined combination of at least one of the plurality of coating materials and at least one of the plurality of curing environments associated with each of the plurality of predefined regions.

As to claims 1 and 17, Schultz et al. discloses the use of masks to aid in depositing coating material on only certain predetermined regions of the substrate (col. 18-21), however Schultz et al. lacks a teaching of using masks to aid in providing particular reaction conditions to only certain predetermined regions of the substrate. It is noted that Schultz et al. teaches that various target regions on a substrate can be exposed to different heat histories (col. 26, lines 22-32). Also, Schultz et al. teaches heating to cause reaction by various techniques such as thermal, infrared and microwave heating, among others (col. 26, lines 30-37). It is the Examiner's position that one having ordinary skill in the art would have been motivated to look to the prior art for conventional means to cure/react only particular regions of a coated substrate while leaving the remainder of the regions where curing is not desired un-cured.

It is well known in the coating art to use spatial masks to prevent particular regions of a coated substrate from being irradiated. Courtney et al. is cited for its teachings of using a mask to prevent radiation from curing its coating in unexposed areas (col. 4, lines 19-28). It would have been obvious for one having ordinary skill in the art, upon seeing the reference of Courtney et al., to have used a spatial mask to initiate reactions only on certain predetermined regions of the substrate in the method of Schultz et al. because Schultz et al. teaches the desire to expose only certain target regions to the reaction conditions and is not limited as to the means to accomplish selective curing, and because Schultz et al. teaches various irradiation techniques as means to react the components on the surface. The radiation transmission inherently varies along the length of the mask because the mask has cut-out areas.

With respect to claims 2 and 21-22, Schultz et al. discloses in Example A (col. 35-36) a single substrate comprising components coated on 16 predefined regions that is placed in a furnace for curing; this meets the limitation of simultaneously applying the same curing environment to each of the plurality of regions.

As to claim 3, Schultz et al. teaches "the reaction conditions at different reaction regions can be controlled independently" (col. 10, lines 57-59), "the predefined regions on a substrate can be subjected to different reaction temperatures by independently heating the predefined regions using a thin film resistive element" (col. 27, lines 30-32), and "reactants can be simultaneously reacted" (col. 28, lines 63-65). Subjecting the predefined regions to different reaction conditions, such as different temperatures, meets Applicant's limitation of selectively applying a substantially different curing environment to each of the plurality of regions.

With respect to claim 4, Schultz et al. teaches using polymeric materials at col. 28, lines 17-25.

As to claims 5 and 18, Schultz et al. teaches coating by spraying, spin coating, dipping at col. 18, lines 40-46.

As to claim 19, Schultz et al. lacks the disclosure of a dip coating apparatus used for coating comprising a plurality of substrate holders and a plurality of wells, and involving immersing a plurality of substrates held by substrate holders in a coating material disposed within the wells. It is noted that Schultz et al. teaches that the substrate may be coated using a number of different mechanical techniques, including dipping (using masking to prevent coating material from coating unwanted areas - see col. 18, lines 40-46). Additionally, Schultz et al. teaches that substantially the same reaction components at substantially identical concentrations are applied to predefined regions on both first and second substrates (col. 32, lines 15-34), therefore Schultz et al. teaches a desire to coat a plurality of components. The Examiner notes that a dip coating method would inherently require a container, or well, for holding a coating material therein, a substrate holder to hold the substrate during dipping because either a machine or a hand is required to lower the substrate into coating solution and lift it back out, and a step of immersing the substrate into the container of coating material. (It is noted that Merriam-Webster's Collegiate Dictionary, 10th Edition, defines "well" as "a source from which something may be drawn as needed.") It is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have used a plurality of substrate holders and a plurality of containers/wells comprising coating material therein to perform the dip coating step of Schultz et al. on a plurality of substrates because Schultz et al. teaches a desire to coat two substrates and

simultaneous dipping of both substrates would increase the efficiency of Schultz et al.'s coating step.

As to claim 25, the elongate heating element of Schultz et al. is a thin-film resistive element in thermal communication with heating source (power supply) and is operably positionable adjacent to the plurality of substrates and has a modulated heat trasmissibility characteristic (col. 27, line 29 to col. 28, line 4).

7. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. in view of Courtney et al. as applied to claim 17 above, and further in view of Poullos et al. (US 5,200,230).

Schultz et al. lacks the disclosure of a curing/reactive environment comprising a scanning mirror system having a mirrored surface positionable relative to an incoming radiation beam, wherein the mirrored surface is positionable to direct the incoming radiation beam to a selected one of the plurality of regions associated with the coating layer. It is noted however that Schultz et al. teaches in col. 27, lines 23-28, using laser thermolysis where bursts of energy of a predetermined duration and intensity are delivered to target regions on the substrate. One skilled in the art would have been motivated to look to the prior art in the area of lasers to determine a specific system capable of delivering bursts of laser energy to targeted regions on a substrate for use with the system of Schultz et al. Poullos et al. discloses a method of targeting laser radiation on a particular surface of a coating to fuse/bake the coating (col. 1, lines 43-49). The laser apparatus of Poullos et al. makes use of scanning mirrors and waveguides to position the laser at the desired surface of the coating (col. 5-6). It would have been obvious for one having ordinary

skill in the art to have used the laser apparatus of Poullos et al. to perform the laser thermolysis curing of Schultz et al. because Schultz et al. broadly discloses using laser thermolysis but does not provide details of the apparatus used and is not limiting as to the apparatus that may be used, and because the apparatus of Poullos et al. provides curing in small, specific regions as desired in the process of Schultz et al.

Allowable Subject Matter

8. Claim 26 is allowable over the prior art for the reasons discussed in the prior Office action.

9. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 20 is allowable for the reasons discussed in the prior Office action.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kcj KCJ

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